

THE AMERICAN JOURNAL OF OPHTHALMOLOGY

VOL. XXVIII.

FEBRUARY, 1911.

No. 2.

ORIGINAL ARTICLES.

GUNSHOT INJURY OF THE GLOBE AND ORBIT; TWO BULLETS IN THE BRAIN.*

BY A. E. EWING, M.D.,
ST. LOUIS, MO.

DISCUSSION OF THE NEUROLOGICAL SYMPTOMS AND RESULTS IN THE CASE.

BY M. W. HOGE, M.D.,
ST. LOUIS, MO.

The case here described was first seen on the fifth of July, 1910. The history given was that a playmate on a low hillside thirty yards away playfully pointed a supposedly unloaded shotgun at the patient, who was near the foot of the hill. The gun was discharged and instantly the patient dropped as if dead. The patient says he felt a tingling through his body and he thought some one had been shot, but he was not aware that he himself was the victim. Persons present say that he seemed to be stunned but was at no time unconscious; his right arm and right leg were both limp and helpless; no trouble with his speech or the right side of his face; there were twenty-three shot wounds in the scalp and ten in the face and ears; those on the face and ears being on the right side except one, which was in the nasal portion of the left upper eyelid; otherwise there was apparently no injury to either eye, although he could not see with the left.

Within three hours after the injury he began to vomit, although he had taken nothing on the stomach, and this vomiting continued

*Read before the Ophthalmic Section of the St. Louis Medical Society, February 1st, 1911.

at short intervals for the following thirteen hours, when the stomach became quiet and he had no further trouble in retaining his food. There was not at any time very much pain and practically no fever, the physician in charge depending mainly on potassium bromide to control an excessive nervousness which developed and persisted during the succeeding five or six weeks.

The wounds on the right side of the face and the head healed promptly and also the one in the left orbit; but those in the left parietal region of the scalp became inflamed the third or fourth week, this swelling extending down around the ear and being accompanied by fever. With a free discharge of pus from the wounds, this swelling disappeared and also the fever; the discharge, however, continued "for months." On the fourth day following the injury there was a slight twitching of the flexor muscles of the right forearm. On the thirteenth day there was a slight movement in the right hand, and later in the same day he could move one of his fingers. From this time on the arm improved, but there was no action in the leg until after another two weeks had passed. In the beginning of this recovery all movements of both the arm and the leg were very indefinite, the patient not being able to direct them properly, and now he still walks lame and uses his right arm and hand imperfectly. The patient says that on his right foot there is no action of the toes except in the large one.

Within half an hour after the injury there was a puffy swelling of the lids of the left eye which completely closed them, although the eyeball did not become red, and there was no evidence that it was injured except that there was no vision and the pupil was not "quite right"; according to the description it was probably eccentric, or there may have been uncoagulated blood in the anterior chamber. This swelling disappeared in about four days under applications of pledgets from cold water. At the end of about six months the left eye began to become at times irritated and to close in the light. During this time the pupil had never "looked right." When the irritation and photophobia began, after this six months of quietude, they were always present, sometimes less, at others more marked, until finally the right eye also became involved, and this induced the parents to consult an oculist, nine months from the date of the injury.

At this time there was moderate irritation of each conjunctiva and a tendency to keep the left eye somewhat closed. The left globe was filled with blood and there was no perception of light, otherwise there was no evidence of injury to the globe. In the

nasal portion of the upper lid there was a small scar from a shot wound, but so far inward that, judging from the general direction of the shot wounds in the scalp, this shot must have missed the eyeball. The advice to submit to an X-ray examination was rejected.

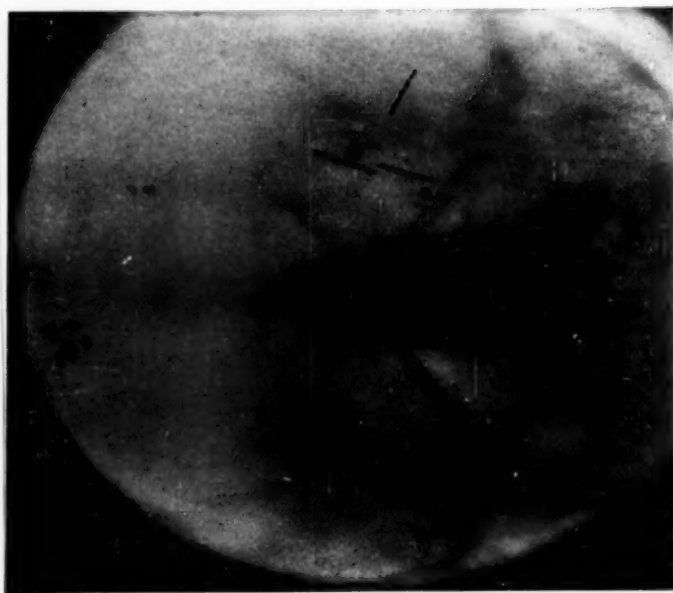
Two months later the patient returned with marked photophobia in each eye, so marked that an examination of the injured one was difficult. With the consent of the parents the plates were then made under the supervision of Dr. Wagner, from which the accompanying half-tones have been reproduced, in one-half the original size and re-touched a very little at the points where the shot are located. Although there was no foreign body in the eye enucleation was considered but declined because a neighbor, injured in one eye, had submitted to the removal of the injured eye and had lost the other also. With the use of euphthalmine and cocaine, one per cent. solution, the photophobia gradually subsided so that the patient could readily bear ordinary light. The left eye was still filled with blood, globe firm, no tenderness.

Three months later the blood had cleared from the extremely shallow anterior chamber; the pupil was four and one-half millimetres in diameter and round, and there was apparently an opaque lens. The circum-corneal injection in the left eye had increased and the photophobia in both eyes was more marked than at any time heretofore. Enucleation was submitted to and the globe removed under nitrous oxide gas and oxygen. In the globe, bisected when solidly frozen, there was practically no anterior chamber, the lens was dislocated to the inner side and there was total separation of the retina, this membrane being suspended between the disk and the lens to the nasal side in an old blood clot which filled the globe.

It is a point of interest that a shot passing nasalward by the sclera and creating no great amount of visible disturbance in the conjunctiva, should so utterly destroy the eye with an intraocular hæmorrhage to the temporal side as well as to dislocate the lens inward, as if either the focal point of the concussion had been in the temporal portion of the choroid or else that there had been a rapid suction action produced by the bullet in its passage through the orbit. A still more noteworthy matter of interest lies in the fact that the same afternoon following the enucleation, which occurred in the morning, and, as above observed, under gas anæsthesia, the photophobia had entirely disappeared from the right eye—an absolute demonstration that this eye was only suffering in connection with the injured eye. No inflammatory



Lateral exposure.
 Gunshot Injury of Globe and Orbit; Two Bullets in the Brain.
 (1) Bullet located in orbit; (2) and (3) bullets located in the brain; (4) bullets in diploë.



Antero-posterior exposure.
 Nasal guide a little displaced. Eyelid guides in proper position.

infiltration in the optic nerve of the enucleated eye was revealed by the histological examination.

As will be seen by consulting the reduced reproductions from the radiographs there are also two shots in the brain, one in the central (2) and one in the posterior parietal region (3), both on the left side. On the right side in the upper portion of the frontal bone, deep in the diploë, but probably not injuring the dura mater, are several others (4). As the parents state positively that there was but the one shot injury about the left orbit, and as the radiograph shows this shot to be in the posterior nasal portion of the orbit (1), these two shot in the brain must have entered through the left parietal bone and their course was changed to the side of least resistance, which would account for their being so deeply buried in the brain tissue.

It is possible that one shot followed another and that these bullets in the brain may have passed through the same wound in the skin in the left orbit as the one that lodged in the orbital wall, and then through the orbital foramina to the location where they are now resting. In this case, however, there probably would have been much greater cerebral disturbance.

At the time when the radiograph was taken the case was referred to Dr. Hoge, who herewith kindly discusses its neurological symptoms and results.

This patient was seen by me through the courtesy of Dr. Ewing, September 17, 1910.

The motor cranial nerves are intact, but there is still some impairment of motion in both right limbs, probably a little greater in the leg and foot than in the hand and arm. It will be remembered that restoration of function was first noted in the hand.

The paresis is of the spastic type, the tendon reflexes are increased and ankle clonus and Babinski reflex are present in the right side. The patient's mind is clear and there is no disturbance of speech. No decided sensory changes were found. A hemiplegia presents the same physical signs whether caused by an injury to the cortex or to the white matter of the brain. Differentiation can only be made by a consideration of other symptoms present, the history of the case and the distribution of the paralysis.

When convulsions occur, especially if frequently repeated, this points strongly toward a cortical lesion.

The ordinary type of hemiplegia (non-traumatic) is usually due to softening or hæmorrhage at the internal capsule, and where

the lesion is large enough to cause complete hemiplegia, if on the left side of the brain, as in this case, it almost always also produces aphasia.

It is possible to have a lesion in the white matter above the internal capsule, not involving the fibers from the motor speech area of the cortex which will cause paralysis of the leg and arm only; but on account of the wide separation of these fibers in this area it must necessarily be a large lesion, causing therefore considerable shock, probably coma, and such a destruction of fibers that even a moderate recovery of function would not be probable.

A meningeal hæmorrhage may cause a more or less extensive paralysis of one or more limbs, according to location and extent; may cause very complete suspension of function for a time, with complete or approximate restoration of function after its removal by operative interference or by absorption.

In this particular case, a shot, severing a meningeal vessel rather high up could have caused a hæmorrhage, the clot being thicker over the motor area for the leg, somewhat thinner over that for the upper limb, and not extending down far enough to reach the face and speech centers. Also we would have motion returning first and most completely in the upper limb, as occurred in this case, whereas the reverse would obtain in capsular hæmorrhages.

If the shot had penetrated the brain and caused a paralysis by cutting the fibers of the internal capsule to the arm and leg, those to the face muscles could hardly have escaped; and continuing in a straight line, it would also have severed at least a portion of the sensory fibers of the capsule.

The same areas would also have been compressed by a hæmorrhage to one side of the capsule, if large enough to cause sufficient compression to produce a complete hemiplegia, and in addition we would expect coma.

This analysis of the history and symptoms leads us to believe that we had a meningeal hæmorrhage over the motor cortex for the leg and arm, which, being absorbed, has allowed the degree of restoration which at present exists.

If the patient could have been seen at the time of the accident, the indications would have been to turn down a bone flap and remove the clot, thus shortening the time during which the cortex was subjected to compression, insuring a more perfect restoration of function and lessening the danger of leaving a focus which might favor the development of epilepsy.

ON A BENIGN EPITHELIAL GROWTH OF THE IRIS.

By ADOLF ALT, M.D.,

ST. LOUIS, MO.

In the April, 1902, number of this Journal I published a paper entitled: "On Intraocular Epithelial Newformations." In this paper I reported on a number of undoubted, mostly pigmented, epithelial newformations in the human eye, as I had encountered them (without previous clinical diagnosis) in my studies. All of them were evidently of a benign character, and some, perhaps most of them, were unmistakably the results of previous and accompanying inflammatory conditions in the uveal tract. Only one of these newformations concerned the iris alone and appeared as a pedunculated, microscopically small, appendix to the posterior surface of the iris near its periphery.

Lately while examining an eye which had been enucleated, on account of a choroidal sarcoma situated near the æquator, I came upon a newformation in the iris which I think is worth a detailed description.

The choroidal sarcoma was still comparatively small, about the size of a pea. It had started from the choroid with a broad base and became rapidly smaller towards the interior of the eye. It was evident that it had taken its origin from the outer layers of the choroid. The retina was partly attached to it and partly removed from it by hæmorrhages. The tumor was very vascular, more particularly so in its inner portions where wide blood channels could be recognized plainly even with the naked eye. What remained of the vitreous chamber, as well as the posterior and anterior chambers, was filled with an albuminoid exudation which, as usual, was coagulated to a hard mass.

The sarcoma is of a mixed type, being chiefly made up of short spindle cells, which here and there surround nests of round cells interspersed with giant cells. The round cells are predominating in the inner, more recent, portions. In some parts of the periphery a distinct alveolar arrangement is found. While the larger part of the tumor is unpigmented, numerous connective tissue and epithelial chromatophores are distributed through it in irregular bundles, stripes and aggregations.

The choroidal sarcoma is, therefore, of a type which is well known and with which we meet not infrequently.

When examining the anterior third of the eyeball I was struck by an abrupt thickening of the pigment layers of the iris, especially near or at the pupillary edge. In most of the sections this

thickening very much reminded one of a *nævus* or melanoma, being apparently confined to the swollen iris tissue; in others a distinct projection into the posterior chamber was formed. No attachment of the iris to the anterior lens capsule could be found, although this does not absolutely prove that there never had been any during the course of the affections to which this eye was subjected.

Bleached sections, alone, could aid in the explanation of these pigmented swellings.

The iris periphery is attached to the cornea in the manner of glaucomatous eyes. The iris tissue in general is highly atrophic and in parts almost devoid of bloodvessels. The pigment of the



FIG. 1.

destroyed chromatophores lies in the dense tissue irregularly distributed in larger and smaller round or oval masses.

The pigment layers, while apparently not especially altered, seem in parts rather thicker than normal, especially near the periphery. In some sections the portions near the pupillary edge have become detached, I think, artificially during the cutting, or at perhaps by post mortem changes.

The bleached sections give somewhat different pictures according to the part of the iris from which they are taken. In one part the newformation lies a small distance removed from the pupillary edge (See Fig. 1), and distinctly projects backwards as a roundish swelling.

The cells of the epithelial layers on the posterior surface of the iris near this swelling appear slightly enlarged, but otherwise but little altered in their arrangement, until the edge of the swell-

ing is reached. Here the usual appearance abruptly ends and in the place of the two rows of cells appears a mass of larger and smaller round epithelial cells, some of which have two nuclei. At the edge of this swelling it looks, as if the new cells came from the anterior layer, since some cells of the posterior layer can be traced on the posterior surface of the newformation. In these parts the newformed mass of epithelial cells enters the iris tissue only very slightly; its bulk has grown backwards and apparently free into the posterior chamber. Its posterior outline is not sharp and rounded but rather ragged, some cells evidently having been torn off during the cutting. (Fig. 2.)

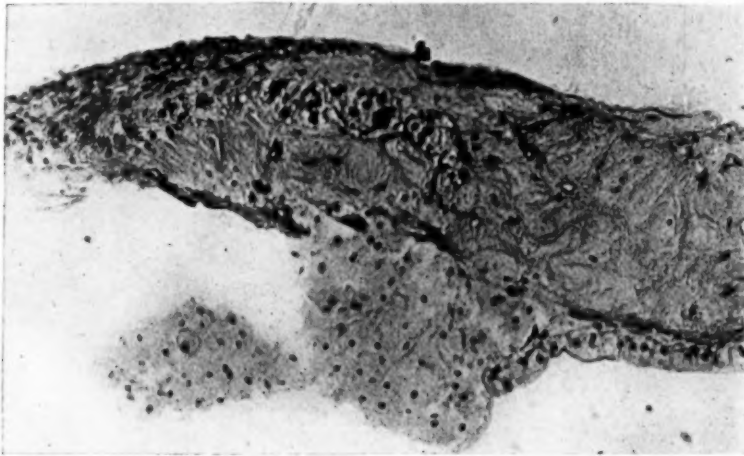


FIG. 2.

There is no intercellular substance and there are no blood-vessels within this newformation.

In these sections, then, we have a distinct growth of epithelial origin and made up of nothing but epithelial cells growing in the main backwards into the posterior chamber. The swelling is similar to, but much larger than, certain hyperplastic changes of the pigment layers which I have had occasion to describe in a paper on "A Case of So-called Iridocyclitis Serosa with Secondary Glaucoma." (This Journal, August, 1907, pages 225, etc.)

While this is the condition on the one-side of the iris (in meridional sections), on the other side the newformation appears somewhat different. (Fig. 3.) Here the swelling lies in the pupillary edge of the iris and chiefly concerns the atrophied iris tissue itself, and is pressing the anterior parts together; it but lit-

tle projects into the posterior chamber at its periphery. In the bleached sections what is left of iris tissue is partly very dense and almost devoid of nuclei, while at the anterior surface cells and compressed bloodvessels are still preserved. The sphincter pupillæ is represented by a few strands of spindle cells widely separated



FIG. 3.



FIG. 4.

from each other and hardly recognizable as such. The remainder of the tissue is made up altogether of round epithelial cells varying as to size, but mostly quite large. Some have two nuclei. (Fig. 4.)

In the same manner as on the other side of the iris the epithelial layers on the posterior surface of the iris appear normal in shape and arrangement up to where the swelling begins, when they suddenly disappear and give place to the epithelial newformation.

I do not think that there can be any doubt about this newformation having derived its origin directly from the retinal layers of the iris. The parts where the epithelial cells have barely entered the iris tissue are, perhaps, the last affected, while the growth may, perhaps, be oldest where it has invaded the iris tissue most. Even in the latter parts the epithelial cells reach for a slight distance backwards into the posterior chamber; but the outline of

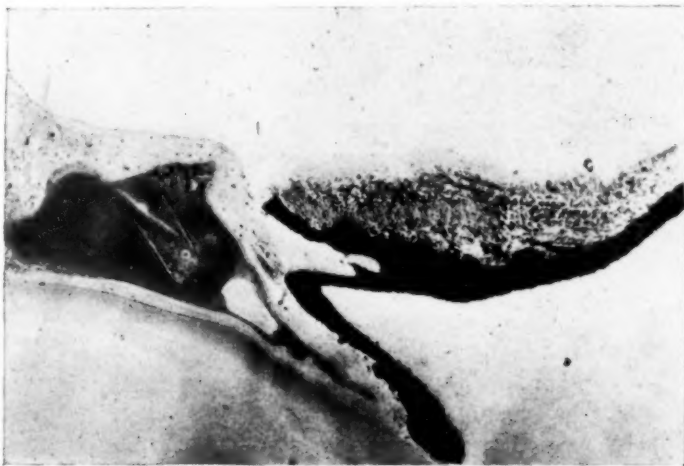


FIG. 5.

the swelling is ragged, cells undoubtedly having been torn off, so that it is not possible to say how far the newformation may actually have reached still more backwards in these parts.

While, as stated, the appearance of the swelling before being bleached was somewhat like that of a melanotic nœvus of the iris, the bleached sections seem to speak against such a diagnosis, because at least in the cases of nœvus of the iris which I have had occasion to examine, there is no tumor projecting into the posterior chamber and the retinal layers do not seem to be disturbed in their arrangement where they lie behind the nœvus, although the nœvus cells, also, seem to spring originally from the epithelial cells covering the posterior surface of the iris.

While I found nowhere any signs of posterior synechiæ in my

sections, the pupillary edge of the iris being in every one of them separated from the anterior lens capsule by more or less of the albuminoid exudate which fills all the cavities of the eye, it is, as already stated, impossible to say positively that the origin of this newformation was not a posterior synechia. Still, it differs very decidedly from all the posterior synechiæ which I ever have seen and examined after bleaching the tissues, and there are no corresponding remnants of pigment on the anterior lens capsule.

The following illustrations (Figs. 5 and 6) show for comparison an extensive posterior synechia in an injured eye which, also, suffered from secondary glaucoma. The iris tissue is

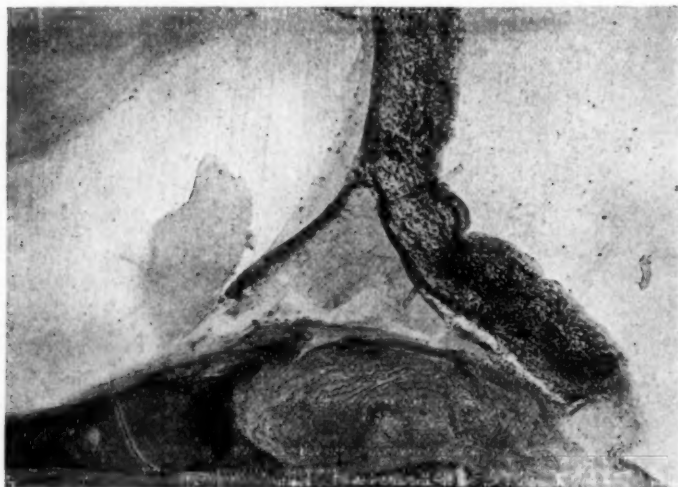


FIG. 6.

still infiltrated with round cells. Here a posterior synechia has taken place and the retinal layers of the iris are drawn out in a long string by which the pupillary edge of the iris is connected to the anterior capsule of the cataractous lens behind a pupillary membrane.

The bleached section (Fig. 6) shows that the retinal layers of the iris are but little disturbed in their arrangement except where the fold of their cells has become adherent to the lens capsule by an inflammatory exudate which later became organized. There is no similarity whatever between the conditions seen in such an extensive posterior synechia and those found in the case of epithelial newformation of the iris detailed above.

Yet, in spite of this, the newformation may have had its origin in an inflammatory condition. The nearly total atrophy of the iris tissue surely points to a former severe iritis. At present there is no cell infiltration seen and nothing can be found which might prove the character of the epithelial growth to be malignant.

In how far this tumor corresponds to the one described by Hirschberg and Birnbacher (*Centrbl. f. Augenhlk.*, 1896) as a "spongy cancer of the posterior layer of the iris" I cannot tell. As far as the cells constituting the tumor are concerned, they seem to be the same as in mine. Yet, these authors speak of cords and tubes filled with hydropically degenerated central cells and wide bloodchannels without endothelial lining contained in some fibrous tissue which was thought to be degenerated vitreous body. Moreover, their tumor did not invade any other tissue, especially not the iris. The two newformations, therefore, do not seem to be identical.

ENDOGENOUS GONORRHOEAL LESIONS IN CORNEA AND SKIN.

C. F. Heerfordt (*Hospitalstidende*, Copenhagen, May 11 and 25, 1910) reports a number of cases where lesions developed in the subcutaneous tissue and cornea of patients having a general gonorrhoeal infection. In the skin vesicles may develop with or without an accompanying superficial dermatitis, and these lesions sometimes show a hæmorrhagic tendency. At times rheumatoid pains precede or accompany the dermatitis which suggest that the peripheral nerves are involved. Of 23 cases of gonorrhoeal epibulbar subconjunctivitis 8 had keratitis. The phlyctenular keratitis which develops during the course of a subconjunctival conjunctivitis is in all probability of endogenous origin. Heerfordt reviews the literature on this subject and adds that both ocular and cutaneous manifestations are usually mild and transient.

THE IMPORTANCE OF TAKING THE VISUAL FIELDS
AS A ROUTINE PROCEDURE IN OCULAR
EXAMINATIONS.*

By J. W. CHARLES, M.D.,
ST. LOUIS, MO.

There can be no doubt that the careful consideration of the field of vision, especially for green and red, is essential in all cases of brain implication and syphilitic nerve disease. That there is a certain general standard or general average in the limits of these fields which we call "normal," there is also no doubt; but there is one point which I especially wish to emphasize, viz., that there are individuals whose visual fields vary so decidedly from the normal standard as to appear pathological, when in reality their color-limitations are as congenital as congenital color-blindness. Therefore we cannot say, "This field is caused by disease and this one is not" unless the taking of fields becomes a routine part of our practice in all examinations. In order to ascertain whether a patient sent to us by a neurologist has a normal or a pathological narrowing of the field in many cases, we must compare the present fields not with the standard based on average fields, but rather with the patient's own fields taken perhaps years ago when he first consulted an ophthalmologist. If that cannot be obtained I believe that with moderate contractions in color fields (varying from the standard average limits based on the fields of great numbers of otherwise normal individuals taken by various ophthalmologists and called "normal" color-fields) we are not justified in reporting to the patient's physician a "pathological" field, but only one that is smaller than the average, and in impressing upon him that later observations possibly showing an increase or a diminution of the fields are absolutely necessary, if we are to determine whether his variation from the usual standard is for him normal or pathological. I therefore believe that our duty to our patients demands that we take sufficient time to examine the fields so as to have a record for future reference, and even if the patient does come only for glasses, he should be made to understand that our work is not that of opticians to be impressed into glass-fitting but that he comes to us for medical advice.

The following case of cerebellar tumor illustrates this point; and I must confess that I should have preferred to be able to

*Read at the meeting of the St. Louis Ophthalmological Society, February 13th, 1911.

give to the neurologist, who made the diagnosis, the perimetric tests which should have been made in my first examination and which I did not make until the diagnosis was already certain, although the delay in making a topographical diagnosis for operation was not influenced by my tardiness.

On June 8th, 1910, H. S. M., 42, came to me on account of headaches which had persisted for three weeks. He was working very hard in his business and was very much hurried here, coming simply because he suspected that at his age and with his work all that was needed was reading glasses. He was rather sallow and his bowels were irregular. The pupils reacted normally in every respect.

The ophthalmometer gives As.=0.5 M. vertical R. and L.

Ophthalmoscope: Veins rather large, but fundi normal.

Trial: Hm. 0.25 R. and L.

I prescribed for reading +0.25 cyl. axis vertical+0.5 sph. R. and L., and advised patient to seek expert advice if his headaches were not relieved after regulation of his bowels.

The patient returned home, worked for three weeks, became suddenly deaf on the left side and consulted Dr. E. M. Senseney, who diagnosticated the case as nerve-deafness and referred the patient to Dr. M. A. Bliss for a neurological examination on June 30th, 1910.

NOTES OF DR. BLISS.

Six weeks ago severe pain began in the back of the head. About ten days ago the patient lost the hearing in the left ear. He has been seasick, but has only vomited a few times. Is nauseated most of the time. The headaches are noticed most from 2 a.m. until noon. He has been a hard whisky drinker, but stopped two months ago; he also smoked strong tobacco. Station poor. He cannot maintain balance with feet together and eyes closed. Knee jerks exaggerated. No Babinski. Slight clonus on both sides. The cremasteric and abdominal reflexes are lively. No pain or tactile loss anywhere. No ocular palsy or nystagmus. No facial or motor palsy of the 5th nerve. The patient seems a bit confused mentally at times. Gait slightly rolling, uses a cane to steady himself. There is a general lipomatosis. The fatty tumors are distributed over the entire body. Several of them look like diminutive mammae.

Dr. Bliss then sent the patient to me for further examination. The vision of the right eye now was unchanged, that of the left was 19/24 to 19/15. The pupils were normal in every respect.

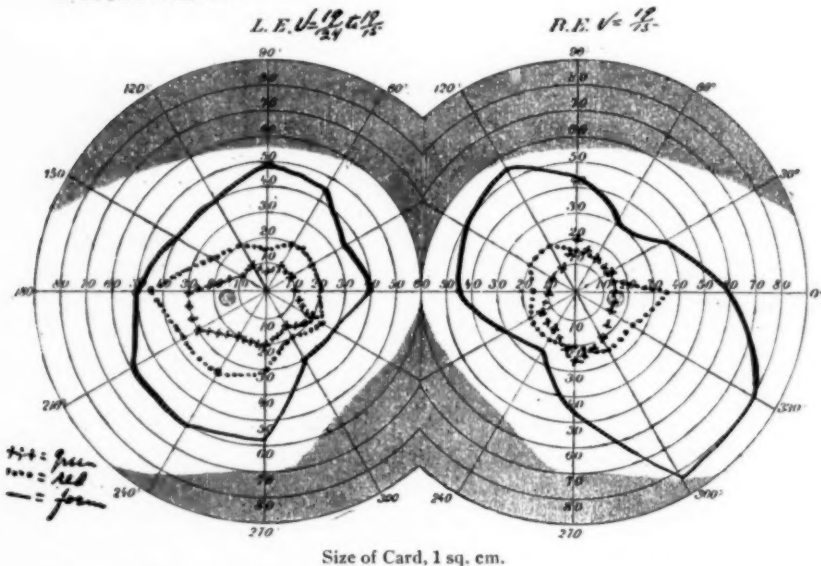
There was no central scotoma. The ophthalmoscope showed large veins and the discs blurred at the upper nasal margins.

The fields showed in the right eye a contraction in the upper outer and lower nasal portions, representing an œdema (pressure) more marked in the inner lower and upper temporal portions of the papilla. This œdema was contralateral as far as we could judge from the fields and ophthalmoscopic appearance, although the side of poorest vision was ipso-lateral.

DR. BLISS' NOTES CONTINUED.

July 1st.—Pulse 90, volume moderate. The tuning fork is best heard in the good ear (right). He does not hear a watch or

Date, June 30th, 1910.



tuning fork with the left ear, but he hears the voice if raised a little. No headache or nausea, but uncertain in gait. Bowels have not acted freely.

July 4th.—Severe attack of pain back of head this a.m. Patient vomited violently and has been nauseated since. He staggers. Hearing in left ear very poor.

July 4th, 1910.—Ate a rather hearty dinner of herring at noon, and by 5 p.m. an intense headache came on. He came to the hospital and was put to bed and vomited during the night.

July 5th, 1910.—Severe vomiting—much pain in the back and top of the head. At times the patient loses track of the time of day. Any movement causes nausea and head pain, which he de-

scribes at times as shooting. The tongue is heavily coated. Breath foul.

July 10, 1910.—Have kept him flat as much as possible and made no critical examinations. This morning with Dr. Schwab I find left 7th, probably 6th and 5th nerves involved. Some rotary nystagmus. The involvement of the 7th produces a marked difference in the resistance to opening the eye passively, and shows in the difference in the mouth lines. While no double vision is present there seems a little weakness in the left abducens. The tests of the 5th nerve are not very conclusive, but seem to show some lowering of cotton and pin sense. The left conjunctiva is certainly less sensitive to the touch of cotton.

The abdominal reflexes show no difference. No Babinski. Grasp equal and firm.

July 11, 1910.—Pulse 52. On walking possible a tendency to the left. Affection of the 7th nerve more marked than yesterday, of the 5th chiefly in conjunctiva. Nasal stimulation gives lacrimal reaction on both sides. There is double vision to left to-day.

On July 12th, 1910—Under ether anæsthesia, by means of an osteoplastic flap, the posterior cranial fossa was opened by Dr. V. P. Blair, whose notes follow:

"The flap was so planned as to expose the dura mater covering the whole of the posterior inferior surface of the left half of the cerebellum down into the foramen magnum, half of the right cerebellar lobe, and the occipital lobe for 2 centimeters above the lateral sinus. Considerable intracranial pressure was evident and a small opening was made into the dura to allow the escape of cerebrospinal fluid. The scalp and neck wound were then sutured. The neck, head and upper part of the chest was enveloped in plaster of Paris. No very material changes in symptoms is noted.

"On July 18th, 1910, the wound was again opened and the flap turned down. The dura and falx cerebelli were incised and on moving the cerebellar lobes to the right a soft tumor, the size of a walnut, was found occupying the antero-superior surface of the left cerebellar lobe. The tumor was also attached to the petrous portion of the temporal bone. It was partly cystic. The cyst was evacuated and the tumor removed without difficulty. The wound was closed and the head, neck and chest enveloped in plaster of Paris.

"The immediate post-operative recovery was good. The deafness, facial palsy, diplopia and headache all were markedly im-

proved, but as long as I observed the case, they never absolutely disappeared. The vomiting ceased, the gait became almost normal and the patient gained 40 pounds.

"The patient died on November 30th, probably from the return of the tumor which was a small round cell sarcoma."

SPONTANEOUS COMPLETE ABSORPTION OF THE LENS; AGE OF PATIENT SEVENTY YEARS.*

BY A. E. EWING, M.D.,
ST. LOUIS, MO.

In his excellent exhaustive article on the lens in "Norris and Oliver," William F. Norris mentions numerous instances where the lens cortex had become fluid, the nucleus had dropped into the lower portion of the capsule and useful vision had been restored to the patient. Besides this also a few others are included in which there was complete absorption of the lens nucleus. Several like those of the first class have come under my personal observation. Also in the case of an injury with rupture of the capsule I have observed the complete absorption of the lens in a male patient fifty-one years of age, a positive demonstration that the hardened nucleus sometimes does absorb. The agent in this case was the aqueous and the time required seven months. In those instances in which the absorption goes on within the capsule the agent which causes the absorption is unknown, but as the aqueous may absorb both the cortex and the nucleus, this unknown agent unquestionably has a similar power, as is shown in the cases mentioned by Norris and further confirmed by the one now to be described, which has recently come under observation.

The patient, a healthy female seventy years old, says that she had cataract in her left eye fifteen years ago so advanced that at that time she could not see to read with this eye. Four years ago the eye became very red and was very sore and painful for about a week; was treated by her general practitioner. Since then it has given no trouble. Six months ago the vision in the right eye failed and with its failure she discovered that she could see very well with the left. In the right eye there is now a well developed cataract with every condition favorable to an extraction. In the left the pupil is five millimeters in diameter, a very

*Read before the Ophthalmic Section of the St. Louis Medical Society, February 1st, 1911.

little elongated upward and clear, iris tremulous, anterior chamber somewhat deeper than normal, tension of globe a very little above normal. The ophthalmoscope and focal light both show that there is aphakia, a delicate pupillary membrane, two minute chalky looking particles floating in the anterior portion of the vitreous and a glaucomatous cupping of the disk measured in depth by two diopters. The only evidence that a lens had ever existed is its capsule, no trace of even the nucleus being present anywhere unless it is in the small particles in the vitreous. The field is about one third its normal area, vision with the best correction, viz., +11.0 sph. +0.5 cyl. axis horizontal is 20/75, with which the patient is satisfied for the present. Nowhere in the cornea or in the sclera is there any evidence of an operation or injury. The patient and also her family say that there never was any operation performed and so far as they know or could remember there had never been any injury.

In this particular instance there is a possibility that the severe inflammation mentioned as having occurred four years ago was due to a rapid swelling of the lens, during the course of which there may have been a minute rupture of the capsule, and in this manner the aqueous was admitted to the lens substance.

That such cases are very rare in St. Louis and its vicinity is evidenced by the fact, developed on personal inquiry, that none has ever been seen by Dr. Green, Sr., Dr. Post or Dr. Alt, and it is the first that has come under my observation during a private and clinical practice of twenty-eight years.

TRANSLATIONS.

THE ABORTIVE TREATMENT OF BEGINNING CATARACT.*

BY DR. LOUIS DOR.

(Translated by Adolf Alt, M.D.)

The medical treatment of cataract had fallen into desuetude when Badal advised instillations and bathing of the eyes with a 3 per cent. solution of potassium iodide. Since then Badal's method has been tried by everybody, but with very different results. For some this treatment is efficacious, for others it is very doubtful. Von Pflugk (Dresden) has spoken in German in favor of this treatment, and at the last ophthalmologic congress at Heidelberg, occasioned by a communication by Rohmer, he has repeated that he is very well satisfied with the results. I was present when he made this statement and I noticed that his remarks were received by slight disapproving murmurs. Near me a voice whispered: "He is right"; at once other voices said: "What, you too?" and the discussion continued. He said: "I am absolutely certain that I have arrested some cataracts"; the answer was: "There are a good many cataracts which spontaneously remain stationary." When silence again reigned, every one seemed to retain his own standpoint.

At the hotel in the evening I talked about Badal's method with one of the five French oculists who had come to Heidelberg. This was my sympathetic colleague, Dr. Chevallereau, and he said that in his experience the iodide of potassium treatment was decidedly efficient. But here (at Lyon) two of my colleagues have told me that they have given up this method, since they saw only very doubtful results from its use. Thus opinions differ.

If a vote were taken among oculists, I believe the unfavorable opinions would outnumber the favorable ones.

My own opinion is that the method as recommended by its author is of a certain value, but that is not sufficient in the majority of cases.

From a consideration of the pathogeny of cataract I have modified Badal's technique, and the results which in three years I have observed are such that I am not afraid to speak of the cure of some cases, of the improvement in the majority of them,

*La Clinique Ophthalmologique, Jan., 1911.

and of the remaining in statu quo in the others, and of a failure in a very small proportion only of the cases.

My experiments were based on the well founded opinion that cataract is produced by a ferment which passes into the aqueous humor while it should remain in the blood. This ferment, which is hydrating, causes the hydratation of the albumens in the lens. I have shown all this in my article in the *Encyclopédie Française d'Ophthalmologie*.

The aim of the therapeusis is to annihilate this ferment. Yet ferments differ very much from each other. Some are made active by the presence of a chemical substance and others are rendered inactive by this same substance; we cannot foretell what the action of a certain substance will be on a certain ferment; this must be found out by experimentation. I have, therefore, made a list of some substances which inhibit the fermentative actions in general and I have tried, one after the other, the handiest of these. I have tried potassium iodide, sodium iodide, chloride of calcium and magnesium, phenic acid, resorcine, sodium salicylate, sodium borate, and lithium benzoate. I found some patients who knew they were making therapeutic experiments and were willing to do it. They bathed one eye in the iodide of potassium solution recommended by Badal and the other in another solution. Trials with sodium borate were not encouraging; those with lithium benzoate and sodium salicylate were doubtful; those with resorcine were decidedly favorable (especially a salve of 0.1 gr. to 20 gr. of lanoline and 2 gr. of water); magnesium chloride seemed to act in certain cases only; but the best results and much superior to those produced by potassium iodide, were obtained by a mixture of sodium iodide and calcium chloride in the following proportions:

Sodium iodide (well dried).....	5 grammes
Calcium chloride (crystalized).....	5 grammes
Distilled water	400 grammes

With this solution we can arrest at least 8 cataracts out of 10, heal one, and experience a failure in the tenth case only.

When I speak of healing a cataract I, of course, allude only to such cataracts which are in the earliest beginning and which still have $V=1/2$.

At the end of two months of treatment $V=1$ and the patients have again a presbyopia corresponding pretty exactly to their age, while in all cases of cataract in evolution the presbyopia is greater than the age would call for. Not all of the few striæ

observed in the periphery of the lens disappear, but no new ones are formed. Probably only those fibres become again normal which were not yet visibly opacified. They were swollen and their refraction was modified. I speak of these fibres and of their restoration when I speak of the healing of a cataract.

In the great majority of the cases the patients' vision is already smaller than $1/4$ when they consult us; such patients easily recover $V=1/2$, but this does not easily reach 1. In these cases, therefore, we can speak of an improvement only and not of a cure. In some cases the treatment seemed to simply arrest the affection and no improvement in vision could be demonstrated. In such cases we have good reason to suspect a stationary or even perhaps a congenital form of cataract. The failures will be observed in the cases of cataract due to diabetes or intestinal intoxication, or with detachment of the retina and pigmentary retinitis. In these cases, in spite of the admirable persistence of the patients, I have obtained no results.

I have now treated fifty patients by bathing the eyes with my solution; five have been cured for two years and have stopped all treatment. They can read with ease and are enchanted. They have recovered normal vision in both eyes.

About forty of them come to see me from time to time, interrupting and resuming the treatment. Nearly all of these say that the treatment has benefitted them greatly and they are sure they can read and work with much greater ease than before. I said *nearly* all of these, because an exception is made by a few of these patients who had probably a stationary or congenital form of cataract. With them neither an improvement nor a retrogression has been noted. I have advised five patients to stop the treatment because, in spite of their absolute willingness to treat their eyes regularly, their vision grew worse.

I must now state the little trick which I employed in order to get the results which I here announce.

This little trick consists in covering the edge of the eyecups which are used for the eyebaths with a rubber rim. I had some eyecups with such a rim made here at Lyon by Lépine (Place des Terraux) and by Lafay (16, rue de la Barre), and I consider this precaution as indispensable. The bath should in fact be very prolonged. The patients should bathe each eye for half an hour each day. When the eyecup has no rubber rim the patient either does not press the cup sufficiently hard against the eye and the fluid runs out and the bath is insufficient, or he

presses too hard and in consequence suffers sufficiently from this pressure to reduce the time of the bath.

It is, therefore, necessary to direct the patients to have eyecups with a rubber rim, and, furthermore, to warm in a porcelain dish the quantity of the solution necessary to fill the eyecup. When the liquid is warm it is poured into the eyecup and the treatment is begun. It is unnecessary to wink the eye in the bath, since the point is not to get the fluid into the lacrimal passages, but to get results by means of osmosis through the cornea. When dealing with somewhat delicate patients it is best to recommend to them to warm the liquid again at the end of the first quarter hour. Some patients say that the solution pricks or burns them. There is then always an impurity of the iodide or chloride present. If some metallic iodine is liberated the caustic action of this liquid interferes with the healing and discourages the patients. The solution must be made from very pure salts, recently crystalized and kept from light and moisture.

The solution when well prepared is absolutely non-irritant. The treatment must last several months without interruption, on an average from three to six months, then a few months of rest are followed by a repetition of the treatment.

The results I have obtained have seemed to me to be so markedly superior to those obtained with potassium iodide, that I feel that I render a great service to my colleagues and their patients by communicating to them my formula and the method of using it. It would be superfluous to publish my cases in detail. What interests the practitioner are the conclusions. Let every one try in his own sphere, perhaps, to find a formula even better than mine.

In conclusion I want to add that my formula should also be recommended to all patients with acquired lens myopia, and to all who are more presbyopic than their age warrants. Both of these conditions are often premonitory symptoms of cataract.

Of course, I do not count the patients whom I have treated and cured from these conditions, as having been cataract patients.

The patients of whom I spoke above had the plain ophthalmoscopic signs of beginning cataract and a diminished visual acuity. I mention that these signs must be looked for downwards and with the mirror alone. Sometimes it is necessary to instill atropine.

We can almost promise an improvement to all patients with

$V=0.2$; those who have $V=0.5$ and formerly had 1.0 can almost always regain this latter acuity.

When the patients are tired of the eyebaths, they may be given the resorcine salve of which I have given the formula and which is put into the eye on retiring. When I tried to use this salve with my solution I found this to be a mistake and I have not continued it. I grant an indisputable action to Badal's solution of potassium iodide, but I consider it inferior to that of my mixture.

PRIMARY SPOROTRICHOSIS OF THE LACRIMAL SAC.*

By V. MORAX.

(Translated by Adolf Alt, M.D.,)

In the course of experiments made on rabbits by Dr. Fava in my laboratory at the Pasteur Institute, he obtained by inoculation of the lacrimal sac a dacryocystitis with per cystic gumma of a sporotrichotic nature. The good luck would have it that quite recently I observed in a patient of my special clientèle a sporotrichotic infection of the lacrimal passages, the symptoms of which showed a great analogy to those which I had had occasion to observe in the rabbit. I hasten to say that the diagnosis of sporotrichosis did not become impressed on me at the first examination, but that certain peculiarities brought me to make a bacteriological examination of the pus. It was this examination which permitted me to establish an ætiological diagnosis and to prescribe an efficacious treatment.

The patient was a traveling man, some forty years old, of good general health, who had never had any affection of the eyes or eyelids. Lately he had become run down, and about the beginning of November, 1910, his left eye had shown some lacrimation.

This lacrimation soon disturbed him sufficiently to consult a colleague who prescribed a solution of sulphate of zinc. This treatment caused no improvement. About the same time, and almost since the beginning of the affection, the patient noticed a swollen preauricular gland and two nodules, one lying in the thickness of the cheek, the other below the horizontal branch of the lower maxilla.

**Annales d'Oculistique*, Jan., 1911.

Soon the simple lacrimation was followed by pus formation at the inner canthus, then by swelling and redness of the region of the lacrimal sac. In this condition the patient came under my observation, about 3 weeks after the onset of the symptoms.

On November 21st, 1910, I found the symptoms of a purulent dacryocystitis with beginning of the formation of a prelacrimal abscess. The patient did not suffer, but he was troubled and much frightened. The region of the sac was raised by a small fluctuating substance of about the size of a pea, and was pretty sore on pressure. The tegments of this region were infiltrated, but the erythematous zone was smaller than usual in a streptococic infection. By slight pressure a drop of grayish pus was expelled from both the superior and the inferior lacrimal punctum. The bulbar and palpebral conjunctivæ were intact, as also, the other parts of the eyelids.

A lacrimal injection could not be made on account of the cowardice of the patient.

By palpation a swollen gland was found in the preauricular region, little sensitive to palpation and of the size of a big hazelnut. Above the maxillary angle a gland of the same size was found. Furthermore, the patient drew my attention to the presence in the cheek corresponding about to a point at the level of the third molar on the left side of a nodule, of slight sensitiveness and situated between the mucous membrane and the outer skin of the cheek, and not accompanied by any reaction on the part of these membranes. This nodule of the size of a small nut did not appear fluctuating.

The diagnosis of the lesions offered no difficulty, but it was different with the ætiology.

Syphilis being out of question, I thought of a tubercular or other rare infection. Since it appeared necessary to have the patient permit some sort of intervention, which, however, was not urgent, I proposed to him I would watch his case a few days and gave him an eyewash of a very weak solution of oxycyanite of mercury and a solution of argyrol.

On November 27, as the conditions remained unaltered and since the accumulation of pus in front of the lacrimal sac had increased, the patient consented to an incision of the abscess. It was done with cocain anæsthesia, because the tissues were extraordinarily hyperæsthetic. After the incision was made a drop of pus escaped, and when the lips of the wound were pulled apart the wall appeared whitish and looked like an incompletely softened

gunma. From the cavity of the gunma a probe could easily be entered into the lacrimal sac and duct.

The pus was sown on ascites gelatine. Several fragments curetted from the wall were inoculated in two guinea pigs, and a number of smears were made for direct examination of the pus.

Dry dressing.

November 28th.—The patient has not suffered any pain. The bandage is removed; the appearance of the lesions is still the same.

December 1st.—At the point of incision a fistula persists through which every moment some stringy and purulent fluid escapes. Since the cultures have shown the presence of sporotrichon Beurmanni, potassium iodide is prescribed first in 2, then in 3 grammes doses per day.

December 8th.—The patient has taken treatment regularly and is in no way inconvenienced. The local conditions are the same and the swollen glands show as yet no reduction.

December 22d.—For eight days, that is about two weeks after the beginning of the treatment, a great improvement in the symptoms has taken place.

The suppuration at the lacrimal fistula still persists but gets dryer. Yet, from time to time, the patient notices a drop of murky fluid escaping. The swelling due to the prelacrimal gunma is disappearing. The glands are smaller and the nodule in the cheek is barely as large as a pea.

The daily dose of potassium iodide is increased to 5 grammes. The patient takes without difficulty 2.5 grammes at noon and as much after supper. His general condition is better.

January 9th, 1911.—The cure is almost complete. The fistula is closed and the redness of the region has given place to a very slight rosy tint. There is still a slight sensitiveness to pressure, but no liquid can be squeezed out of the lacrimal puncta. There is still a slight lacrimation which does not trouble him much and is noticed chiefly in the cold air. The preauricular gland is no larger than a lentil; the submaxillary gland has disappeared and the nodule in the cheek has the size of a pea.

The patient is very well satisfied with the general and local conditions. The treatment with potassium iodide is continued without difficulty. We may remark here that he had taken 400 grammes per week regularly in order to reduce fleshiness.

Bacteriological examination. The test tubes inoculated with pus from the prelacrimal abscess have shown quite a number of

pure colonies of sporotrix. The parasite was identified as *Sporotrichon Beurmanni* by the different signs which we have mentioned elsewhere.

The guinea pigs inoculated under the skin of the abdomen have thus far shown no symptoms, no ulceration, no glandular swelling, so that we are permitted to discard all idea of a tuberculosis associated with the sporotrichosis, as has happened in a number of cases.

The smears had given negative results, since the minutest microscopical research failed to detect parasitic forms among the leucocytes, which were mostly considerably altered.

We call this a primary infection of the lacrimal sac with sporotrix since no lesion was found in the conjunctiva nor at some more distant point, before the appearance of the lacrimal affection.

The suppuration following lacrimation and the contemporaneous appearance of the preauricular glandular swelling are, also, in favor of the exactness of our hypothesis. We have not found a lymph cord as we have observed it in our first case published with Carloti.

The gumma situated in the cheek sat too deep to connect it with a lymph tract coming from the lacrimal region, but it is probable that its origin was a parasite brought there by the lymph from the preauricular swollen gland. The presence of this gumma was what at first aroused our curiosity. This shows once more the importance of not confining oneself to a symptomatic diagnosis. No doubt, had we made the habitual dilatation of the the lacrimal tract, we should rather have helped the destruction caused by the sporotrichon than improved the patient's condition.

The treatment with potassium iodide has shown itself in this case as efficient as in the cases of sporotrichosis previously observed. Its action became visible in about two weeks, and five weeks after the beginning of its exhibition the cure could be considered as almost complete.

OBITUARY.

CHARLES J. KIPP. †

With the deep feeling of a great loss we have to announce to our readers the death of our dear friend and a collaborator of this Journal from its beginning, of Charles J. Kipp, M.D., one of the foremost oculists of this country, a broad minded, many-sided man, a good author and fruitful writer, an excellent operator, a close observer, and a gentleman of the truest type. He will continue to live in our memory.

Charles J. Kipp was 72 years old when he succumbed to pneumonia on January 13th, at his home in Newark, N. J. Born in Germany, he had come to this country as a young man. He graduated in medicine from the College of Physicians and Surgeons of New York City in 1861. In 1862 he entered the army and later served as physician on general Franz Sigel's staff. He rose to the rank of major and was brevetted lieutenant colonel in 1865. In 1868 he resigned his position in the army and took up the special practice of eye and ear diseases at Newark, N. J., where he served as surgeon to the Newark Eye and Ear Infirmary, of which he was one of the founders. He was in 1900 president of the American Ophthalmological Society, in 1908 president of the American Otological Society, and second vice-president of the American Medical Association in 1909. From 1901 to 1906 he served as president of the board of managers of the New Jersey Sanatorium for tuberculous diseases. Aside from these he held numerous other position of trust and importance.

It will be hard to fill his place.

ALT.

ABSTRACTS FROM MEDICAL LITERATURE.

By J. F. SHOEMAKER, M.D.,

ST. LOUIS, MO.

PNEUMOCELE OF THE LACRIMAL SAC.

E. M. Blake (*N. Y. Med. Jr.*, Feb. 4, 1911) reports a case of pneumocele of the lacrimal sac and states that so far as he has found in his search through the literature, only four other cases having this condition have been reported. He judges from this that it is a very rare condition or else it is not looked for very carefully. His case was that of a young man who, two years before, had been struck with the end of a broom handle, producing a subcutaneous hæmorrhage in the lids, but no laceration of the skin nor bleeding from the nose or conjunctiva. He complained of nothing but epiphora when he came to Blake, but stated that when he blew his nose forcibly a swelling appeared over the lacrimal sac which disappeared promptly when the intra-nasal pressure was released.

Blake found, under forced expiration with the nostrils and mouth closed, that there was a distinct ballooning of the sac, measuring four by six millimeters. A perceptible click was heard as the air entered the sac, probably caused by the separation of the walls of the sac. The lower canaliculus was slit to relieve the epiphora and on attempting to pass a probe there was a marked stenosis found so that the probe could be passed only after dividing the tissues by passing a Graefe knife through the canaliculus. The author explains the phenomena of pneumocele on the theory that the valve-like fold of mucous membrane at the lower end of the nasal duct (Hasner's valve) was deficient or lacking, thus allowing the air to pass from the nose into the lacrimal sac. With an obstruction in any part of the canaliculus the air must remain in the sac until it can pass down through the nasal duct again, which it does because of the elastic walls of the sac, as soon as the intranasal pressure is released. In his case the blow which caused the black eye had probably produced the stricture of the canaliculus at the entrance to the lacrimal sac and if the valve of Hasner was absent or deficient the conditions were all present to produce a pneumocele whenever the intranasal pressure was sufficiently increased.

RESTORATION OF THE UPPER LID, WITH REPORT
OF TWO OPERATIONS.

Edward B. Heckel (*Penn. Med. Jr.*, July, 1910) describes his method of operating to restore the upper lid, reporting two operations. After having the patient's head shampooed once and the face and area about the eyes thoroughly washed with hot water and soap three times daily for two days before the operation, and the arm from which he is to get the skin graft scrubbed for the four days preceding the operation and bandages with a moist bichloride dressing 1 to 5000, he carefully dissects the lid down over the eye, under general anæsthesia, taking care not to buttonhole it. After the lid has been freed so that the ciliary border can be brought down over the eyeball, he inserts a strong suture into the free border of it and anchors it down well on to the cheek so that it is put on a stretch. All bleeding is carefully stopped by pressing gauze pads dipped in hot water upon it. If there are any bleeding points that persist they are caught with a forceps and twisted. Then a moist pad is kept over it until the grafts are ready. He next cuts the Thiersch, or epithelial grafts with a sharp razor, after the Halsted method, and transfers them to warm normal saline solution. As the graft shrinks and curls up at the edges he recommends that it should be two or two and one-half times as large as the raw surface to be covered. The graft is transferred to the lid by placing it with the epithelial surface over the left forefinger and with this pressing it over the denuded surface, not permitting the edges to roll under, until the entire raw surface is covered. After trimming off any of the edges that extend beyond the denuded surface he covers the graft with sheet rubber which has numerous small perforations, and covers this with gauze which has been dipped in normal salt solution and is considerably larger than the graft. Covering this with a piece of sheet rubber he fastens the dressing in place by two strips of adhesive plaster and covers it all well with cotton, held in place with a roller bandage. The raw surface on the arm is covered with sheet rubber and an aseptic dressing applied. After two or three days the eyelid is dressed, taking off the dressings carefully down to the graft and washing the lid well, especially around the edges with normal saline solution. Then a similar dressing as the first is applied and after this it is dressed daily until the sixth day when the bandage can be left off and the anchor suture removed. From now on the graft

is kept well smeared with bichlorid cold cream 1-3000. In both of his operations he secured most excellent results by this method.

THE HISTOLOGIC FINDINGS IN A CASE OF TUBERCULOUS CYCLITIS, AND A THEORY AS TO THE ORIGIN OF TUBERCULOUS SCLERITIS AND KERATITIS.

F. H. Verhoeff (*Trans. Am. Oph. Soc.*, 1910) says that cases of episcleritis, scleritis, and sclerokeratitis, with nodule formation are divided into two groups, one of which is made up of the rare cases due to syphilis, leprosy and active tuberculosis, while the other contains those numerous cases due to some obscure cause, generally believed to be rheumatism. He believes this second class of cases are always due to tuberculosis and thinks he has adduced evidence of this in a previous report of a series of cases in which subcutaneous tuberculin injections were used. His views have since been strengthened by a larger series of cases in every one of which a general reaction to the tuberculin test was obtained and in most cases a local reaction as well. He is convinced that these local reactions to tuberculin are of much value in the treatment of such cases. The clinical history of a case of tuberculous cyclitis is given together with the pathological findings of the examination of the eye which was enucleated. The study of this case suggested to Verhoeff a theory of the way in which the infection reaches the sclera and cornea in tuberculous scleritis and keratitis, which he sets forth in the following conclusions:

"In tuberculous scleritis (anterior nodular scleritis), the infection reaches the sclera through the filtration angle. The infecting bacilli are derived chiefly from the superficial vessels of the ciliary processes, and are carried in the aqueous humor to the filtration angle. Whether there are always small initial foci on the surface of the ciliary processes, or whether the bacilli, contained probably in phagocytic cells, are exuded through the intact pars ciliaris retinae is uncertain.

In tuberculous keratitis the infection is also from the aqueous humor, the cornea becoming infected either by metastasis or extension from foci about the filtration angle, or in a similar manner from the foci of a preceding scleritis. In pure tuberculous keratitis, which rarely, if ever, occurs, the infection takes place in the former way only.

Two forms of tuberculous cyclitis are to be distinguished,

namely, the interstitial and the superficial (punctate). Interstitial cyclitis is usually secondary to scleritis, and due to the direct extension of the latter. Superficial cyclitis occurs as direct blood metastasis. Clinically, it manifests itself as one of the forms of serous cyclitis.

Superficial tuberculous iritis, involving the posterior surface of the iris, may occur, and is analogous to superficial cyclitis, with which it is probably often associated.

EXTRACTION OF CATARACT IN ITS CAPSULE.

V. H. Hulen (*Ophthalmic Record*, December, 1910) describes a new method of extracting cataract in its capsule which he has used successfully in six cases. The new feature of his operation is the engaging of the lens in a small vacuum cup and with this lifting it out of the eye in its capsule. His method of performing the operations is as follows:

The preliminary preparations are the same as for an ordinary cataract extraction except the use of atropia in the eye an hour previously. The speculum is introduced and the section made in the limbus includes one-half of its circumference; raising a conjunctival flap above, a small iridectomy is done and the edges of the coloboma replaced. The speculum is now removed and a drop of cocain instilled. Should blood in the anterior chamber exclude the pupil it is removed by a gentle stream of warm saline solution. Next the assistant holds the upper lid with a retractor, controlling the lower lid with the other hand; under no circumstances must he now allow pressure on the globe until the eye is finally closed. The extractor is introduced through the section from the convenient side and gently let down on the lens, making sure the cup is everywhere free of the pupillary margin so that the iris may not be pinched subsequently. The extractor is held in the operator's right hand, and the left is free for use as required. The patient should look straight ahead, never down. With the cup resting over the center of the anterior capsule the nurse turns the cock at the gage, the vacuum thus connected will cause the cup to grasp the cataract more rigidly. The extractor is then somewhat elevated and rotated to sever the suspensory ligament; now with the upper edge of the cup slightly raised the cataract in its capsule is slowly and gently lifted out, passing easily through the pupil and section. The edges of the coloboma are replaced and the subsequent management of the case is not different from the usual method.